Lesson Title	Statistical Analysis in Text Form
Length of Lesson	50 minutes
Created By	Shane Irvin
Subject	Technical Writing, Statistics
Grade Level	11^{th}-12^{th}
State Standards	5b. Explain the generalizability of results and types of conclusions that can be drawn from observational studies, empirical experiments, and surveys.
DOK Level	DOK 2
DOK Application	Observation, Generalization, Compare
National Standards	Select and use appropriate statistical methods to analyze data. Display and discuss bivariate data where at least one variable is categorical.
Graduate Research Element	Conducting statistical analysis and being able to discuss in a research paper is extremely important.

Student Learning Goal:
The learning goal for this lesson is to get the students to critically think about how to define and discuss statistical analysis in a research based paper. So many students are in need of this remediation because they are taught how to write in a narrative style but not a technical style.

This lesson will provide the students with an example and a trial to see if they can explain some standard statistics in their own words.

Materials Needed (supplies, hand-outs, resources):
An example of a published research paper (get permission), data set (get permission), and writing utensils for error in their own work.

Lesson Performance Task/Assessment:
The task and assessment for this lesson will be answered throughout the lesson. It is up to the student to fully comprehend the lesson. The students will be assessed by asking a standard group of question like:

What specific details do you see in this research paper about the results and statistical analysis that you may have left out of your paper?

Why is it important to think about a statistical analysis and write out the procedures before even conducting the analysis?

What could be an issue with improperly labeled graphs or falsely conducted analysis?

Lesson Relevance to Performance Task and Students:
This lesson is relevant to the students because of a recent experience on a research paper assignment that required them to analyze statistically and discuss the statistical analysis and results in full during the research paper.

The majority of the students failed to complete this task and remediation in the form of examples and questioning is needed.

Anticipatory Set/Capture Interest:
The anticipatory set for this lesson involves both the graduate student providing the students with a published paper that he was the main author on as well as completely opening the floor for criticisms from the students

Guided Practice:
The teacher will pass out the example paper and asked the students to read through it as much as they can. They will then be asked to see if they understood everything, if they didn't what would they change? The teacher will then show examples of bad research paper techniques as well as good techniques. While discussing the good and bad examples good statistical analysis techniques will be shown, as well as "what to avoid" isms.

Independent Practice:
The students will then work through their own papers that they turned in and see if they can see changes that they would directly make for the next time they conduct a statistical analysis.

Consider using an article with mistakes and see if the students can catch them. This exercise will help them in their proof reading ability

Remediation and/or Enrichment:
Remediation:
In situations that remediation is needed the student can see the instructor for one on one tutoring. The student can also be paired with a high performing student with full understanding of the lesson.

Enrichment/Extension:
In situations where there is full understanding, the lesson can extended by letting the students find errors or changes they would make in the paper passed out. All of these extensions depend on the students' ability and knowledge of the subject matter. Individual IEP's will be supported.

Check(s) for Understanding:
The students will be assessed by asking a standard group of question like:

What specific details do you see in this research paper about the results and statistical analysis that you may have left out of your paper?

Why is it important to think about a statistical analysis and write out the procedures before even conducting the analysis?

What could be an issue with improperly labeled graphs or falsely conducted analysis?

Closure:
To close the lesson, I will want to hear opinions from the students. Whether they believe they were on the right track or if they were off it. It really is important to be able to get these students to see mistakes in both their papers as well as the mistakes in the example that was passed out. This will show them that it isn't just them. It is important to analyze statistical data properly to prevent the paper from being accused of illegitimate claims.

Possible Alternate Subject Integrations:
Technical writing, English, All mathematics, All sciences, All technical subjects

Teacher Notes:
While it is sometimes hard to see the connection, tech writing and proper conveyance of statistical analysis is important for every subject, not just English. I fully support the idea of integrating this into ACT preparatory.

Consider using an article with mistakes and see if the students can catch them. This exercise will help them in their proof reading ability